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54 A container assembly for the transport and storage of a liquid or powdery filling material.

57 A container assembly for the transport or storage of liquid or of powdery filling material with a self-supporting outside container made of a thermoplastic plastic material and an inside container in the form of a foil bubble that matches the inside area of the outside container. In its container jacket and in the bottom area, the outside container has a discharge pipe nozzle with an outside thread for a cover or for connecting armatures, while the container top has a container cover opening that is much larger than the discharge pipe nozzle opening. The container cover opening can be closed. The foil bubble can be filled with the filling material and rests against the outside container when full. The foil bubble has a hose nozzle that can be attached to the outside edge of the discharge pipe nozzle and can be closed with a valve screwed onto the discharge pipe nozzle as well as opened to drain the container. The top of a filled or partly filled foil bubble is not connected to the container top opening of the outside container.

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A container assembly for the transport and storage of liquid and powdery filling material

The invention concerns a container assembly for the transport and storage of a liquid or powdery filling material consisting of a self-supporting outside container made of a thermoplastic plastic material and of an inside container in the form of a foil bubble that matches the inside area of the outside container, in which case the container jacket bottom area of the outside container is fitted with a discharge pipe nozzle with an outside thread for a cover or to connect armatures and the container top has a container top opening that can be closed and exhibits a much larger diameter than the discharge pipe nozzle, in which case the foil bubble filled with the filling material rests against the outside container when full. Such containers are generally very large, e.g., with a capacity of 1000 liters and more (see DE-GM 88 07 118). The foil bubble permits multiple use of the outside container in a simple manner. Furthermore, its design is based on disposal-related reasons. The self-supporting outside container can be used several times, when the foil bubble that may contain liquids considered an environmental hazard is removed and disposed of after use according to regulations. In such a case, there is no need to thoroughly clean or decontaminate the inside of the outside container. It is understood that care must be taken to ensure that the foil bubble does not leak after it is filled with the liquid or powdery filling material.

In a known container assembly (DE-OS 22 55 299), the outside container consists of a barrel. The inside container is called a push-in bag and is connected to the plug located in the barrel cover. This will cause problems at least when the wall of the container is not connected to the inside wall of the barrel. There exists the risk of the bag being torn off from the plug opening and its content spilling into the inside of the barrel. In a container assembly of another type, i.e., a flexible container with a pass-through opening for the discharge nozzle of an inside bag (DE-AS 12 78 335), the inside bag is fitted with a discharge nozzle that is arranged at the upper area of the flexible container and passes through the pass-through opening. It can be clamped there and it may also be torn off from there.

In contrast to the above, the task of the invention consists in the further development of a container assembly of the above-described type in such a manner that uncontrolled drainage of the inside container into the outside container is practically no longer possible as the result of the high stresses encountered during transport or storage.

To solve this task, the invention states that the foil bubble has a suction nozzle that can be attached to the outside edge of the discharge pipe nozzle, can be closed with a valve screwed on the discharge pipe nozzle and can be opened with said valve for draining, and that the upper side of the foil bubble fully or partly filled with the filling material is not attached to the container cover opening of the outside container. It is clear that the foil bubble is inserted through the container cover opening in the outside container. The theory of the invention can be realized individually and in different manners. A design form that shines on the basis of its simplicity and functional safety is characterized by the fact that the foil bubble has just a single opening in the form of the hose nozzles assigned to the discharge pipe nozzle, can be placed in the outside container in its folded and mostly empty state for filling and can be filled through the discharge nozzle and hose nozzle. It is also possible, however, to arrange the assembly such that the foil bubble has a top filler opening that can be attached to the container top opening for filling purposes and can then be closed and removed from the container cover opening.

Further details and the achieved advantages are explained in more detail with the help of a drawing that shows just one design form. The following is shown in the form of a schematic representation:

Figure 1 shows a vertical section through an empty container assembly in accordance with the invention;

Figure 2 shows the object of Figure 1 when filled;

Figure 3 shows a modification of the object shown in Figure 2,

Figure 4 shows a vertical section - as in Figure 1 - through another design form of an empty container assembly in accordance with the invention, and

Figure 5 shows the object shown in Figure 4 when full.

The container assemblies shown in the figures are used to transport and store liquid or powdery filling materials. The basic design includes self-supporting outside container 1 made of a thermoplastic plastic material and an inside container consisting of foil bubble 2. The inside container matches the inside volume of the outside container. At bottom area 4 of container jacket 3, outside container 1 has discharge pipe nozzle 5 fitted with outside thread 6 for cover 7 or to connect armatures. In its container cover 8, outside container 1 has container cover opening 9 that is relatively large in comparison with the discharge pipe nozzle 5 located in container jacket 3; it also has a collar and can be closed. Foil bubble 2 can be filled with the filling material and rests against outside container 1 when full. Under the effects of gravity acting upon the filled material, it thus rests on floor 4 of outside container 1 and rests on the inside against container jacket 3 of the outside container 1.

Foil bubble 2 has hose nozzle 10 that can be attached to the outside edge of discharge pipe nozzle 5, can be closed by valve 11 screwed upon discharge pipe nozzle 5 and can be opened by said valve for drainage purposes. When comparing Figure 2 with Figure 5, it becomes clear that the top of foil bubble 2 that is completely or partly filled with the filling material is not connected to container cover opening 9 of outside container 1.

In the design form shown in Figures 1 and 2, foil bubble 2 has just a single opening in the form of hose nozzle 10 assigned to discharge pipe nozzle 5. For filling purposes, foil bubble 2 is folded evenly and is in the folded and thus almost completely empty state arranged in the outside container. It may be inserted through the container cover opening 9. It can be filled through discharge pipe nozzle 5 and hose nozzle 10. Although the foil bubble can be filled through discharge pipe nozzle 5 and hose nozzle 10 as described above, Figure 3 shows that the foil bubble may be fitted with nozzle 12 and screwed-on cover 13 when drainage is to be executed in a special manner.

In the design form shown in Figures 4 and 5, foil bubble 2 has an upper filler opening 14 that can be connected to container cover opening 9 for filling purposes and can be closed and removed from container cover opening 9 thereafter. It is clear that the placing of foil bubble 2 in outside container 1 may be achieved with the help of auxiliary devices that are not shown here.

Claims

1. A container assembly for the transport and storage of a liquid or powdery filling material, consisting of a self-supporting outside container made of a thermoplastic plastic material and of an inside container in the form of a foil bubble that matches the inside area of the outside container, in which case the container jacket bottom area of the outside container is fitted with a discharge pipe nozzle with an outside thread for a cover or to connect armatures and the

container top has a container top opening that can be closed and exhibits a much larger diameter than the discharge pipe nozzle, in which case the foil bubble filled with the filling material rests against the outside container when full, **characterized by the fact that** the foil bubble (2) has a hose nozzle (10) that can be attached to the outside edge of the discharge pipe nozzle (5), can be closed by the valve (11) screwed upon the discharge pipe nozzle (5) and can be opened by said valve for drainage purposes, and that the top of foil bubble (2) that is completely or partly filled with the filling material is not connected to the container cover opening (9) of outside container (1).

2. A container assembly in accordance with claim 1, characterized by the fact that the foil bubble (2) has just a single opening in the form of the hose nozzle (10) assigned to the discharge pipe nozzle (5) and that it can be arranged in the outside container in its folded and thus mostly empty state for filling purposes and can be filled through the discharge pipe nozzle (5) and the hose nozzle (10).

3. A container assembly in accordance with claim 1, characterized by the fact that the foil bubble (2) has a top filler opening (14) that, for filling purposes, can be attached to the container cover opening (9) and can then be closed and removed from the container cover opening (9).

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5